In the Claims:

1. (Original) A method for detecting a mobile unit by a Base Station, wherein frequency-hopping is used to communicate between Base Stations and mobile units, comprising:

at a Base Station that is connected to a mobile unit, periodically yielding a hop; and

during the hop which has been yielded by the Base Station connected with the mobile unit, communicating with the mobile unit from at least one neighboring Base Station.

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2. (Original) Method, according to claim 1, further comprising:

at neighboring Base Stations that are not close to each other, using the same hop to communicate with the mobile unit; and

at neighboring Base Stations which are close to one another, using different hops to communicate with the mobile unit.

3. (Currently Amended) In a wireless communication system comprising a Base Station connected with a mobile unit, a method of detecting a ~~handset~~ mobile unit by at least one Base Station which is waiting for the mobile unit to enter its coverage area, comprising:

from the at least one Base Station waiting for the mobile unit to enter its coverage area ~~and the Base Station connected with the mobile unit~~, sending a PING command to the mobile unit; and

at the Base Station waiting for the mobile unit to enter its coverage area, receiving an ECHO reply from the mobile unit.

4. (Original) Method, according to claim 3, further comprising:

from the Base Station waiting for the mobile unit to enter its coverage area, sending the PING command during a time interval that the Base Station connected with the mobile unit has yielded.

5. (Original) Method, according to claim 3, further comprising:

at each Base Station receiving the ECHO response, measuring the quality of the ECHO response and reporting the quality measurements to a Switch connected to the Base Stations.

6. (Original) Method, according to claim 3, further comprising:

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measuring the quality of each ECHO response by a technique selected from the group consisting of energy level measurement, signal-to-noise ratio (SNR) measurement, packet loss ratio, and bit error rate measurement (BER).

7. (Original) Method, according to claim 3, wherein:

the PING command comprises data fields selected from the group consisting of a device address for the mobile unit, an identifier for the mobile unit, a message length, and data; and

the ECHO response comprises data fields selected from the group consisting of an identifier for the mobile unit, a message length, and data.

8. (Original) Method, according to claim 3, further comprising:

at each Base Station, maintaining information about connections between mobile units and neighboring Base Stations, wherein the information is selected from

the group consisting of connection number, handset ID, Base Station ID, handoff status and handset detection status.

9. (Original) Method, according to claim 8, wherein the handset detection status information comprises information selected from the group consisting of number of successful PING, time of last successful PING, quality measurements for successful PINGs.

10. (Original) Method, according to claim 3, wherein the mobile unit is a device selected from the group consisting of:

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telephone handset, standard cordless telephone handset, cellular telephone handset, personal data device, personal digital assistant (PDA), computer, laptop computer, e-mail server, a device utilizing point-to-point protocol (PPP) to the Internet via a central remote access server,a headset, a personal server, a wearable computer, a wireless camera, and a mobile music player.

11. (Original) Method, according to claim 3, further comprising:

providing communication links between the Base Stations, wherein the communication links between the Base Stations are selected from the group consisting of RF links and land lines; and

transferring connection status information and rough synchronization information between the Base Stations over the communications links.

12. (Original) Method, according to claim 3, wherein:

the wireless communication system comprises a wireless private branch exchange (**WPBX**) handling calls from mobile units comprising handsets.

13. (New) In a wireless communication system comprising a Base Station connected with a mobile unit, a method of detecting a mobile unit by at least one Base Station which is waiting for the mobile unit to enter its coverage area, comprising:

from the Base Station connected with the mobile unit, sending a PING command to the mobile unit; and

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at the Base Station waiting for the mobile unit to enter its coverage area, receiving an ECHO reply from the mobile unit in response to said PING command.

14. (New) Method, according to claim 13, further comprising:

at each Base Station receiving the ECHO response, measuring the quality of the ECHO response and reporting the quality measurements to a Switch connected to the Base Stations.

15. (New) Method, according to claim 13, further comprising:

measuring the quality of each ECHO response by a technique selected from the group consisting of energy level measurement, signal-to-noise ratio (SNR) measurement, packet loss ratio, and bit error rate measurement (BER).

16. (New) Method, according to claim 13, wherein:

the PING command comprises data fields selected from the group consisting of a device address for the mobile unit, an identifier for the mobile unit, a message length, and data; and

the ECHO response comprises data fields selected from the group consisting of an identifier for the mobile unit, a message length, and data.

17. (New) Method, according to claim 13, further comprising:

at each Base Station, maintaining information about connections between mobile units and neighboring Base Stations, wherein the information is selected from the group consisting of connection number, handset ID, Base Station ID, handoff status and handset detection status.

18. (New) Method, according to claim 17, wherein the handset detection status information comprises information selected from the group consisting of number of successful PING, time of last successful PING, quality measurements for successful PINGs.

19. (New) Method, according to claim 13, wherein the mobile unit is a device selected from the group consisting of:

telephone handset, standard cordless telephone handset, cellular telephone handset, personal data device, personal digital assistant (PDA), computer, laptop computer, e-mail server, a device utilizing point-to-point protocol (PPP) to the Internet via a central remote access server,a headset, a personal server, a wearable computer, a wireless camera, and a mobile music player.

20. (New) Method, according to claim 13, further comprising:

providing communication links between the Base Stations, wherein the communication links between the Base Stations are selected from the group consisting of RF links and land lines; and

transferring connection status information and rough synchronization information between the Base Stations over the communications links.

21. (New) Method, according to claim 13, wherein:

the wireless communication system comprises a wireless private branch exchange (**WPBX**) handling calls from mobile units comprising handsets.

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22. (New) In a system that includes a mobile unit and a plurality of Base Stations, and wherein a first one of the Base Stations communicates with the mobile unit during preselected time intervals, a method for another Base Station to detect the mobile unit, comprising the steps of:

the first Base Station periodically yielding a time interval; and

during said time interval that has been yielded by the first Base Station, at least one neighboring Base Station communicating with the mobile unit.

23. (New) Method, according to claim 1, wherein said communicating with the mobile unit from said at least one neighboring Base Station includes transmitting to the mobile unit by said at least one neighboring Base Station.

24. (New) Method, according to claim 13, wherein the at least one Base Station waiting for the mobile unit to enter its coverage area starts to monitor said

A28 ECHO reply when an initial connection of the mobile unit to any one of the Base Stations is created.

Other New Claims

New claims 13-22 and 24 also have been added.

New claims 13-21 are claims 3 and 5-12 as filed, with the inadvertent typographic error in the preamble corrected, and with the claims limited to the embodiment of Figure 15B, in which the base station connected with the mobile unit sends a PING command to the mobile unit. New claim 13 also states explicitly that the ECHO reply is in response to the PING command. Support for this additional limitation is found in the specification on page 48 lines 23-25:

> When the handset receives a "PING" command it will automatically respond with an "ECHO" message (response).

New claim 13 in its present form is allowable over the prior art cited by the Examiner against claim 3. As noted above, in the obvious combination of Farwell et al. '354 and Grounds et al. '381, a PING message is used instead of a start handoff message and an ECHO message is used as a synchronization pattern. Also as noted above, such a combination *per se*, without additional provision for synchronizing the base stations to the mobile unit, would be inoperative because the time delay between the broadcasting of a PING command and the receipt of an ECHO response is unpredictable and because only one ECHO message is broadcast in response to a PING command. Therefore, one ordinarily skilled in the art would not make such a combination. In the present invention, a (single) ECHO message in response to each PING command works because the ECHO message is used only to monitor signal strength, not for synchronization. As noted above, synchronization of the base stations to the mobile unit is achieved in other ways according to the present invention.

New independent claim 22 generalizes claim 1 to time-division systems that do not use frequency hopping. Support for new independent claim 22 is found in the

specification on page 46 line 18 through page 48 line 5 that also provides support for claim 1. Note that the paragraph on page 46 lines 18-25 describe the claimed method without reference to frequency hopping. It is only in the next paragraph that frequency hopping is introduced as an illustration.

Finally, new claim 24 has been added to recite another difference between the present invention, as recited in claim 13, and the Examiner's proposed (albeit inoperative) combination of the teachings of Farwell et al. '354 and Grounds et al. '381. Under this combination, base stations 102 and 103 of Farwell et al. '354 would start monitoring the ECHO messages from mobile unit 105 only after they receive initiate handoff commands from a system controller and switch 101, which in turn sends the initiate handoff commands only in response to the receipt of a handoff request command from base station 104 when the strength of the signal received by base station 104 from mobile unit 105 falls below the threshold. By contrast, in the present invention, as recited in new claim 24, the base station(s), that is/are waiting for the mobile unit to enter its/their coverage area, start monitoring the ECHO message as soon as an initial connection is created between the mobile unit and any one of the base stations. Support for new claim 24 is found in the specification on page 49 lines 15-19:

> ...this method allows detection of a Base Station that was not actively engaged in a call at the time of handoff. It is enough for the handset to have only created an initial communication with a Base Station.

and page 50 lines 14-17:

> When the handset 121 enters the coverage area of neighboring Base Station #2 124, the neighboring Base Station #2 124 will receive the "ECHO" response 146' by monitoring each **M**th hop, in order to receive the "ECHO" response of the handset 121 that is approaching it.

In view of the above amendments and remarks it is respectfully submitted that independent claims 1, 3, 13 and 22, and hence dependent claims 2, 4-12, 14-21, 23 and 24 are in condition for allowance. Prompt notice of allowance is respectfully and earnestly solicited.

Respectfully submitted,

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